FOCUS

CUSTOMER SERVICE
Bühler provides services where and when the customer needs them, during the whole life cycle of a plant or a machine.

INTERVIEW JIM TRUDSLEV
The managing director of Lantmännen Cerealia explains why outsourcing the complete plant maintenance to Bühler was a smart move.

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Dear reader,

Optimized operational costs and consistent high product quality – these are key concerns for profitable, sustainable business operations. While technological innovations lead to better energy efficiency and may improve the quality of a product, cost-saving measures require proactive planning, taking into account all expenses for maintenance, repairs and training – and then coming up with out-of-the-box service solutions. Take, for example, the complete service model that Lantmännen Cerealia developed together with Bühler (see interview, p. 14).

But customer service goes beyond traditional maintenance, exchanging wear parts or retrofitting older machinery with new technology – the needs and requirements during the service life of a machine or plant are manifold and extend to consulting, training or research support.

In this issue we highlighted the many facets of Bühler’s customer service (see cover story, p. 16–21). Success stories from different business units all over the world give an impression of just how comprehensive and versatile the support is that customers may expect of Bühler. Customers may also benefit from the diverse technical and process know-how united in one company: A creative approach in one field often results in an innovative solution in another area.

I hope you will enjoy your reading!

Calvin Grieder, CEO
Cross Equity Partners has a wide experience of developing medium-sized European businesses, and will bring fresh expertise to the board of directors. It has also pledged to take on all BPAG employees and managers, retaining the expertise that has made BPAG the world leader in its field. Bühler will maintain a substantial stake in BPAG, and will support the business in partnership with the new majority stakeholder.

Triumph at this Year’s Procurement Leaders Awards

Bühler’s successful implementation of two initiatives – its Total Synchro Concept and Motor Selection Tool program – earned it the first prize in the “Procurement and Crossfunctional Collaboration” category of this year’s Procurement Leaders Awards which took place in May. Seven other companies were nominated for the category, including GlaxoSmithKline, Intel and Tata Steel, but it was Bühler’s contribution to streamlining manufacturing and global supply chain flexibility that earned it the top prize at the award ceremony in London. Bühler’s Chief Procurement Officer, John Walker, told his team that they could be proud of their achievements and said that the award represented the “crowning achievements for the function, worldwide.”

New Taiwan Office

In April 2013, Bühler established a new office in Hsinchu, Taiwan, launching a new era of service for its customers on the east-Asian island. The office – a cooperation between Bühler and recently-acquired optical solutions and web coating company, Leybold Optics Taiwan – employs a team of 16 people, 12 of whom join us from our cooperation partner. This also includes Mike Wang who has headed Leybold Optics Taiwan for over five years; he will now lead the new sales and service organization.

The new office allows Bühler to provide its Taiwanese customers with local expertise, faster response times, as well as local servicing and spare parts. Business areas covered include Grain Milling and Feed & Biomass, Optical Sorting, and Pasta.
SHARING EXPERTISE WITH THE DEVELOPING WORLD

In May Bühler became the newest member of the Partners in Food Solutions (PFS) consortium – a non-profit organization that shares food processing and milling expertise with companies in the developing world. With its comprehensive knowledge of equipment, processes and engineering, Bühler adds to the already impressive knowledge base of existing PFS partners General Mills, Cargill, and Royal DSM of the Netherlands. The consortium applies the combined experience of its partners to food security and nutrition challenges in the developing world – starting with Africa. Collaborating with African food processors and millers via a sustainable knowledge transfer system, volunteer experts provide advice remotely, avoiding the need for travel.

FIRST FACTORY IN SOUTH EAST ASIA

With key customers, suppliers, and new employees in attendance, Bühler Farmila Vietnam Ltd. celebrated the opening of its new factory on February 19, 2013. The new leased facility, in the Long An Province of Vietnam, near Ho Chi Minh City, covers 4,500 square meters and will produce auxiliaries and machines for Vietnam’s unique and developing rice market. Bühler Farmila Vietnam Ltd. is a joint venture between Bühler and a group of local entrepreneurs with extensive experience in the Vietnamese rice market and will focus on engineering and building rice mills. The Vietnamese government’s targeted modernization of the country’s rice industry represents a huge opportunity for Bühler, and the new company – which also includes a test rig for rice machinery and color sorters – is the first of a multi-stage development plan aimed at meeting the needs of the local market.
<table>
<thead>
<tr>
<th>LAB SERVICES</th>
<th>The laboratories offer a broad range of analyses and testing of food and technical materials in order to innovate processes and improve equipment for our customers.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPARE AND WEAR PARTS</td>
<td>Highest standards of reliability apply to original Bühler spare and wear parts. They are perfectly adjusted and ensure performance and production safety.</td>
</tr>
<tr>
<td>CONSULTING</td>
<td>Strategic, plant performance, or energy consulting are just some of the consulting services to improve product quality, production processes and energy efficiency.</td>
</tr>
<tr>
<td>REPAIRS</td>
<td>Dedicated to minimizing downtime in the event of an incident: Fast and reliable technical repair service via the Bühler eTicket or the Bühler Helpline – worldwide, 24/7.</td>
</tr>
<tr>
<td>TRAINING</td>
<td>At Bühler training centers – or at any site anywhere in the world – specially trained experts pass on their hands-on expertise and knowledge to customers’ staff.</td>
</tr>
<tr>
<td>REVOLUTIONS</td>
<td>Bühler evaluates, overhauls, adjusts or renews customer installations – including Bühler and non-Bühler machines.</td>
</tr>
<tr>
<td>MAINTENANCE</td>
<td>Packages are adjusted to fit production cycles to prevent downtime, loss in production efficiency or product quality, ranging from individual services to complete outsourcing of maintenance.</td>
</tr>
<tr>
<td>RETROFITS</td>
<td>With individual upgrades and conversion kits timeworn Bühler machines will perform to current standards of technology and efficiency.</td>
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</table>

**TAILOR-MADE SERVICES WHERE AND WHEN THE CUSTOMER NEEDS THEM**

Bühler Customer Services serve the customer-specific needs and requirements during the whole life cycle of a plant or a machine – and sometimes even beyond, extending a machine’s service life by revising spare parts or by retrofitting older equipment with the latest technology. The customer service network with a staff of more than 1,000 is just as global as the operations of Bühler’s customers, and unites all business units. Bühler’s comprehensive service know-how means that the company’s customers can rest assured to focus on what they do best: their core business.
As good as new

The business unit Die Casting demonstrates how the sensible overhaul of machinery can make a world of difference.

The challenge.
Sometimes exchanging a couple of spare parts just will not do anymore. After perhaps ten years of intense operation, a machine might seem to have reached the end of its lifecycle, displaying a lack of productivity or even producing low quality parts. Is this the time to invest in a new machine? Or might sensible and expedient revision be the solution? For die casting machines, Bühler Brescia Presse proves that there are as many answers to this question as there are machines.

The solution.
With an individually adapted overhaul using original Bühler spare parts, machines can be restored to their full working capacity. Bühler Brescia Presse in northern Italy has more than 25 years of experience with over 1,000 overhauls performed during that time. This vast expertise helps to adapt every overhaul to the customer’s needs, focusing on the toggle system, or on mechanics and hydraulics, or adding extra functionalities or a control system upgrade if desired. First, however, the machine will be washed, dismantled and every single part checked before the exact procedure adequate to the customer’s needs is proposed. The customer then decides on which measures shall be implemented. Bühler Brescia Presse has proven experience in reconditions of die casting machines from many other suppliers.

“The overhaul of machinery is essentially a cost-saving business which includes a lot of technical advice and decisions.”

Paolo Zanone, Head of Remanufacturing, Die Casting

The result.
With a general overhaul, the lifecycle of the machine has been prolonged significantly, and at only half the cost of a new machine. Full production reliability has been restored, resulting in less downtime. The exchanged and revisioned parts have a warranty, excluding works, of one year.
LONGER SERVICE LIFE THANKS TO REGULAR MAINTENANCE

Across the world, local service workshops answer the need for maintenance for instance on roller and flaking mills, in central Brazil.

The challenge.
Rolls are the key elements in the grain grinding and flaking process. But the rolls as such are wear parts. If corrugated rolls are blunted or smooth rolls have become worn, this directly affects processing quality, productivity as well as energy efficiency, and eventually may lead to unscheduled downtimes. To prevent such extensive repairs, rolls need to be serviced regularly. But what if, like one oil customer from Rondonópolis, Brazil, you are 1,600 kilometers away from the South American headquarters in Joinville?

The solution.
In order to offer the important service of roll maintenance to the numerous oil seed processing companies but also to other grain processing companies located in this area, a service workshop was set up in Rondonópolis. It supplies servicing, refurbishment and replacement as well as shipping. Bühler roll services can be purchased individually or as a complete package. In fact, there is a global network of service workshops which are fast and efficient while delivering top Bühler quality at all times.

“We are glad to have a local Bühler setting which is quick and of quality. This presence is important for our future decisions.”
Saulo Badotti, Regio Alimentos S/A

The result.
With a general overhaul, the lifecycle of the machine has been prolonged significantly, and at only half the cost of a new machine. Full production reliability has been restored, resulting in less downtime. The exchanged and revisioned parts have a warranty, excluding works, of one year.
REDUCING DOWNTIME TO A MINIMUM

The Business Unit Die Casting illustrates a solution to the most urgent spare and wear part needs.

The challenge.
Bühler’s original spare and wear parts meet the highest quality standards, maintain the value of the machinery, extend its life cycle – and ensure that the valuable product warranty remains valid. Thanks to a well-maintained stock, warehouses in Europe and the US as well as a comprehensive distribution network, Bühler original parts, including mechanical, electrical and electronic components, can be quickly delivered anywhere in the world. Should a Bühler inhouse produced spare or wear part not be on stock, it will be produced in the matter of two to three weeks. A customer in Germany needed various spare parts to keep its production going of which a return pipe was not on stock – obviously waiting for 14 days was not an option.

The solution.
When the order came in, Bühler activated the Fastline, a parallel production line reserved for emergencies introduced in 2012, to produce the missing return pipe. This way, in urgent cases, extremely fast supply of spare and wear parts can be guaranteed. This service adds to production reliability and complements Bühler’s global support network.

“The Bühler is able to react quickly to extraordinary situations. We never let our customers down.”
Carsten-Dirk Ludwig, Product Manager Customer Service

The result.
Production and delivery of the return pipe was implemented in the matter of 48 hours, thus keeping downtime at the plant to a minimum and preventing major losses in revenue.
PERFORMANCE TUNING FOR TIME-PROVEN TECHNOLOGY

Raising quality and productivity and extending equipment lifecycles is possible, as demonstrates a retrofit success story from the Business Unit Grinding & Dispersion.

The challenge.
When an industry standard is revolutionized, what to do with older machinery, which is still in good working condition? What if product requirements have changed in the course of the last 10 years and the plant’s automation level is not up to scratch? How to tap on the cost saving potential of new energy saving standards with a seasoned plant? When the MicroMedia™ X revolutionized the market of bead mills, producers found themselves in just this situation, with their Advantis™, Cosmo™ and SuperFlow™ mills lagging behind the current standard.

The solution.
Customer service came up with the answer: A conversion kit for older machines to make them benefit from the engineering advantages of the MicroMedia™ X. An individual conversion package is put together that reduces conversion costs to a minimum, taking into account the current state of the machine.

“Thanks to our tried and tested platform concept, our customers can switch to and benefit fully from new process technology by continuing to use their current drive system.”

Stefan Marquardt, Product Manager Customer Service, Grinding & Dispersion

The result.
The result. Following the conversion, customers can increase their productivity by up to 100 percent, while at the same time saving energy of approximately 30 percent. A further benefit of the MicroMedia™ X is that small grinding media can be used with low operation pressure.
TRAINING BRINGS OUT THE BEST IN EQUIPMENT

The Business Unit Sortex & Rice exemplifies how individual trainings can inject expert knowledge of the most up-to-date technology directly into the customer’s workforce.

The challenge.
AgStar Fertilizers, a leading Sri Lankan company in the supply of seeds, fertilizers and finance, is diversifying into the rice milling business. The installation of a Bühler rice mill is underway. Concerned that the commissioning and the start of plant operations should go smoothly, managing director Pasad Weerasekera wanted the personnel in question to have freehand training before.

The solution.
The Application Center in Bangalore, India, assembled a tailor-made training course for AgStar Fertilizers; designed to give full overview of rice processing from paddy receipt to storage, cleaning and milling, including real time plant visits to understand realistic mill operation and management. In addition, AgStar Fertilizers will be able to train their staff at one of the exclusive courses for operators of Bühler rice processing plants offered each year. Here, they receive hands-on training in Bühler process technology and equipment, tuning of machines, plant operations and maintenance. Continued education and training is also offered by Bühler for customers from all over the world in its technology and training centers in Uzwil, Switzerland, as well as at various other sites all over the world.

“The intensive training by the Bühler Application Center is remarkable and knowledge acquired by the trainees is excellent.”
Daya Jayasekara, Technical Director, AgStar Grains (Pvt) Ltd

The result.
With the help of qualified training, the AgStar Fertilizers ensured quick production start-up and will benefit from an increased productivity and motivated employees. On the long run, he prevented skills shortages by qualifying and therefore keeping his personnel.
A FOOD TESTING CENTER TO SUPPORT CUSTOMERS’ INNOVATIONS

To provide solutions for customers’ needs, the Pasta & Extruded Products business unit operates a cutting edge food-grade laboratory.

The challenge.
Food safety and uncompromised hygiene are prime concerns in food processing. Today, producers in the US already face the strictest regulations on food hygiene on the market. Before buying new equipment, introducing new products or changing production capacity, customers want to know that their intended innovation will meet the regulations and their customers’ requirements, and prove that their investment will pay off. By providing sound scientific testing capabilities, advanced food grade laboratories help to develop new process technologies, machines and plants.

The solution.
In 2012, Bühler inaugurated a new state-of-the-art food grade Bühler Food Innovation Center in Minneapolis, adding to the already well-established testing centers in Uzwil, Switzerland, and Wuxi, China. In Minneapolis, a special focus was placed on hygienic design. Customer trials can be conducted on a complete processing line including raw material handling, extrusion, drying, grinding, and bulk packaging.

“Customers can conduct tests at Bühler’s Food Innovation Center that cover all phases of the product development cycle.”

Rolando Gonzalez, Vice President of Food Safety

The result.
Bühler’s Food Innovation Center is now responding to various demands and suggestions from customers through all the phases of a project. Before buying a Bühler machine, trials may prove whether a novel product can be supplied with the intended quality. Concurrent with the commissioning of a plant, staff can train at the Food Innovation Center. Subsequently, trials on scaling up capacity can be performed, or the development of new products on the existing machines can be facilitated.
DEVELOPING SERVICE INNOVATIONS TOGETHER

Jim Trudslev, Managing Director of Lantmännen Cerealia A/S and the large-scale flour mill in Vejle, Denmark relies on cutting-edge innovations not only in the field of production. He also adopts new approaches to service management – where he discovered surprising benefits.

By Dr. Onno Groß  Photos by Tine Hvolby
FOCUS

Lantmännen Cerealia has cooperated with Bühler for a long time now. What are your experiences regarding this collaboration?

Jim Trudslev: Ten years ago, the Swedish Lantmännen cooperative companies decided to construct an entirely new mill in Vejle, Denmark. For this we worked very closely with Bühler on the building design, and that collaboration in fact still continues. Bühler is synonymous with innovative concepts and quality, and that pays off in the long run.

Have the expectations in the new production space been fulfilled?

The architects and engineers tailored the building exactly to the industrial plant supplied by Bühler. Since September 2008, production has been running smoothly. That’s no surprise really: The whole plant is controlled by the tried-and-tested WinCos automation system. What’s more, every floor in the building boasts sophisticated levels of hygiene and technical automation. In Vejle grain comes in and products go out continuously.

But Lantmännen Cerealia decided on a further innovation: the hand over of services to Bühler?

Yes. Saving costs is often believed to mean: Cut expenses in maintenance and servicing. But that’s not what we wanted. We are convinced that this would be an impediment to building trust with customers and entails very high risks for the organization. So, we asked Bühler after the first two years of operation whether we could order maintenance service also as a package. This triggered a lengthy round of calculation and intense debates. But we have never regretted this system and have just renewed and extended the contract again.

Doesn’t this imply a risk of becoming dependent?

We don’t see it this way at all. We had already worked very closely together, even in designing the new factory. From this relationship of trust, the special service package emerged in numerous very open talks. Here in Vejle, this is being done in a highly innovative manner: Bühler has placed permanent employees in the factory and now takes complete care of upkeep and the necessary maintenance routines. They have other technicians on standby in the region and a storage with all the required spare parts – if necessary, they fly in material by air. We, on the other hand, have nothing to worry about and are now only in charge of building maintenance.

What is the big advantage of this service innovation in Vejle?

I have been with Lantmännen Cerealia for 13 years now and am also in charge of international assignments and the other milling production sites in the Nordic region. In comparison, the plant in Vejle is considered a very efficient production site in terms of maintenance costs – that actually speaks for itself. The great advantage of outsourcing service management is the predictability of annual operating costs which used to be impossible in this form. The maintenance costs, as we all know, are dependent on the machinery’s service life. We have now developed a modular system with Bühler allowing these expenses to be extrapolated to one metric ton of flour, depending on production. Needless to say, such a degree of planning security is a real treat for every manager. We are investigating the possibility to extend this successful model also to the other Lantmännen locations.

**VEJLE FLOUR MILL, LANTMÄNNEN CEREALIA**

- **2003** First plans for new milling complex
- **2008** New flour mill goes into service
- **2010** Agreement signed with Bühler for partial services package
- **2012** Agreement signed with Bühler for total services package
- **2013** Extension of the total services package

**Employees:** 160 on the basis of full-time employment

**Revenue (2013)** approx. 900 million Danish kroner (approx. 120 million euros)
To the left of Nisshin Seifun's historic wooden administration building is the new Milling Museum, a landmark to celebrate the company's 110th anniversary.
PARTNERSHIP WITHOUT BORDERS

Japan’s largest flour milling concern, Nisshin Seifun, began as Tate-bayashi Seifun in 1900. Currently operating under its latest mid-term management plan – New Nisshin Innovation – which will continue until the 120th anniversary, Nisshin Seifun Group is moving strongly into overseas markets as well.

By Charles T. Whipple  Photos by Hans Sautter
As wheat has been found at Yayoi era (300 BCE–300 CE) archeological sites, Japan has known the grain for at least two millennia. But although wheat came to Japan early on, flour food culture is said to have come in the 13th century when udon-type noodles were brought to the country from China.

When Japan opened its doors to the outside world (not counting the Dutch enclave at Dejima) and the Meiji era began, bread came in with the foreigners. Still, the Japanese word for bread is pan, which derives from the Portuguese word used by priests who served sacrament to their Japanese converts, especially in Nagasaki. Consumption burgeoned with the spread of western cuisine, wheat imports rose and domestic production jumped to about 460,000 hectares by the time Tatebayashi Seifun was founded in 1900. Furthermore, the plains around Tatebayashi, a town situated about 60 kilometers North of Tokyo in the Gunma Prefecture, were one of Japan’s major wheat-producing areas.

The company did well, and in 1908, bought Nisshin Seifun, took the latter company’s name, and moved headquarters to Tokyo shortly after. “Our founder, Teiichiro Shoda, was a highly motivated executive at an early age,” said Toshio Maruo, Managing Director of Technology and Engineering (as of June 2013, corporate advisor) at Nisshin Seifun Group. “The merger with Nisshin Seifun realized his goal of expansion to the central market, and he always kept an eye on the global market as well.”

Trust as the foundation of all things

Teiichiro Shoda was born in Yokohama just two years after the Meiji era began in 1868. After graduating from university, he worked in the shoyu (or soy sauce) business run by his family in Tatebayashi and waited for the right moment to start his own business.

Shoda, who founded Tatebayashi Seifun at the age of 30, first visited Europe and America in 1913. He was very impressed by the advanced flour milling technology he...
saw during his trip, and he placed an order for a milling machine from AMME in Germany, a predecessor of Bühler AG, to be installed in a new plant in Nagoya. Nisshin Seifun then built additional plants in Mito, Okayama, and Kobe, and then the biggest plant of all in Tsurumi in 1926. To these new operations, Shoda introduced milling machines from AMME and SECK of Germany (later merged with Bühler).

Shoda also wanted his son, who was to follow in his footsteps, to gain as much international experience as possible. Thus Hidesaburo Shoda accompanied his father to Europe in 1929 and again in 1930 when he stayed for a year, studying milling technology. It was then, apparently, that he met Rolf Bühler and became fast friends.

Hidesaburo Shoda strived to make Nisshin the best possible milling company, and likely knew Dr. René Bühler who headed Bühler AG and was a cousin to Dr. Rolf Bühler. Nisshin and Bühler formed a firm partnership in which Bühler supplied the precision milling machines necessary to meet Nisshin’s impeccable quality requirements. That partnership, which passes over national borders, remains intact today. “As I am a mechanical engineer with extensive hands-on training and experience at our plants and now responsible for technology and engineering in our group, I can vouch for the tenacity of Bühler people. No matter how difficult our requests, Bühler always comes through.”

“You see, while our domestic market here in Japan is not growing quickly, customer requirements as to quality are diversifying at a rapid rate. Our Japanese consumers demand pure white flour that is the same no matter which package they open. Some of that comes from our unique milling technology, and a great deal is due to Bühler milling machines,” Maruo said.
He also pointed out a saying by Teiichiro Shoda, the founder of Nisshin Seifun: “Trust is the foundation of all things.” Japan’s choosy consumers select Nisshin flour. Japan’s bakers and confectioners choose Nisshin flour. And Japan’s udon and ramen noodle makers choose Nisshin flour. While Nisshin is the largest flour miller, the company commands nearly 40 percent of the market. But Nisshin also makes other food products such as pasta, premixes, heat-and-serve meals, dried noodles, and chilled, refrigerated, and frozen food products.

“We must be sure every product that bears our brand offers those who purchase it stable and consistent quality. That’s what builds trust. And trust is the foundation of everything we do,” Maruo said.

In this day and age, customer and market trends change seemingly overnight, and food product makers must be ever ready to meet and take advantage of these changes. According to Maruo, “That’s where a partnership without borders, like ours with Bühler, helps keep us on top and ahead of our competitors. Unless we do that, we will be unable to meet our international goals which include strengthening our businesses in Canada, China, New Zealand, Thailand, and the USA.”

Nisshin Milling Museum
In commemoration of its 70th anniversary in 1970, Nisshin Seifun built the Flour Milling Memorial House, using the building that had been the company’s central offices in its original form and welcoming visitors for the following four decades. “We decided to build a milling museum and to position the existing Memorial House as a symbol of the new museum in 2010, to commemorate 110 years in business. We gave it a seismic isolation foundation, so even large earthquakes would not destroy it,” Maruo explained.

The original building shows the steps taken by founder Teiichiro Shoda and Nisshin Seifun’s corporate history.
Further, the building itself is of historic and industrial heritage value because it is an excellent example of wooden western-type buildings from the turn of the 20th century in Japan. Renovation and construction of a new museum building next door were started in 2010 in time for Nisshin’s 110th anniversary, and newly opened in 2012.

Displays include Bühler milling machines from nearly a century ago, more modern machines, and exhibits that lead visitors through the flour milling process. In fact, if visitors work through all the interactive displays, it will seem that they have actually toured a state-of-the-art flour mill.

“It hasn’t been long since the Milling Museum opened, but as it is close by Tatebayashi Station, we expect lots of people to visit the Museum from now on,” Maruo said.

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1900 Nisshin Seifun set up as Tatebayashi Seifun.

1908 Tatebayashi acquires Nisshin Seifun and adopts that name. Nisshin headquarters moved to Tokyo soon after.

1913 Founder Teiichiro Shoda tours Western milling operations; places order for milling machines with AMME.

1926 Milling machines of AMME and SECK of Germany introduced; biggest plant built in Tsurumi (ca. 1,500 ton/day of milling capacity).

1956 Introduction of pneumatic conveying systems in the plants. By 1962, all plants were equipped with the system from Bühler and Miag, a German predecessor of Bühler (ca. 6,300 ton/day of milling capacity).

1967 Acquisition of Ma-Ma Macaroni Company, a pasta manufacturer.

1970 Orders placed with Bühler for pasta machines.

2001 Reorganization into the holding company, Nisshin Seifun Group, and addition of new businesses.

2011 New mid-term management plan to 2020, “NNI-120” announced, aiming at 1 trillion yen net sales and expanding its overseas sales ratio to 30%.

2012 Acquisition of Miller Milling Co., LLC., the 9th milling company in the USA.

2013 Agreement with Goodman Fielder to purchase its flour milling business, Champion Flour Milling Ltd., in New Zealand.

Production bases: 9 plants domestic / 7 overseas (Thailand, Canada, USA, New Zealand)

Average daily flour production: 8,125 tons domestic / 3,795 tons overseas.
OPERATING SUCCESSFULLY IN A NICHE

Mühle Burgholz AG is a small milling company located in the western part of Switzerland. It is a coveted supplier of a wide range of animal feeds to farmers and livestock breeders. The mill owes its commercial success in its regional niche to its continuous expansion of production and its close collaboration with Bühler’s feed milling specialists.

By Herbert Bosshart | Photos by Raffael Waldner

With a comparatively low annual output of 20,000 metric tons, Mühle Burgholz AG is one of the larger of the small providers in Switzerland’s animal feed market. The fact that it can hold its own despite higher production costs is the result of its “commitment to a niche market,” explains Peter Schenk who is in charge of purchasing, quality assurance, and information technology at Mühle Burgholz AG. “We focus 100 percent on the needs of farmers and the regional animal breeding business.” The customers of Mühle Burgholz AG include a number of major pig breeders that receive weekly supplies, plus a large number of small and mid-size farms.

Advantages for farmers

“We produce some 150 different feed formulations for all livestock, from cows to rabbits,” explains Hansueli Thönen, deputy production manager. “We ensure reliable supplies throughout the year, even to remote farms. In winter, our drivers occasionally install snow chains three times a day.” A fleet of five large bulk transporters and nine truck-trailer units manages the customer-friendly deliveries. Mühle Burgholz AG’s customers appreciate its high quality, the customized formulations, and its home deliveries right into the barns of the homesteads which may be located at over 2,000 meters altitude. Farmers, in turn, are prepared to pay somewhat more for this premium service. “Paloxes” are another success factor – wooden containers based on a pallet which hold 1,000 kilograms and fit into any feed shed. “We deliver about one third of our total output to...
“We have relied on Bühler as a partner for decades. The quality of the plant and equipment it supplies speaks for itself. But what is really crucial for us is reliability and service quality.”

Peter Schenk, expansion project manager and head of purchasing, quality management, and IT of Mühle Burgholz AG

farmers in paloxes,” says Peter Schenk. The farmers’ advantage: They pay the bulk delivery price for their feeds, do not need stocks and there are no empty bags to dispose of.

Continued renewal
But the solid market position is not merely the result of customer proximity and services. “If we hadn’t continuously invested in renewing and expanding our production systems, we would have vanished from the marketplace a long time ago,” concedes Hansueli Thönen. Thus, a system for making combi-flakes was added to the compound feed production system just three years after the new mill had gone live. Other capital investments followed in new storage halls, an adjacent bulk storage system with loadout bins, a minor-ingredient proportioning system, and a palox loading plant. But the most sustainable improvements – besides the updating of the entire control system – resulted from the installation of a new pellet mill in 2003 and a second, larger pelleting line in 2012 with a capacity of 12 tons per hour.

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Clockwise from top left:
1 Distribution conveyor belt above the finished goods units.
2 Feed pellets are being transported from the mill to the stable.
3 The new HSYS press line with a capacity of 12 t/h.
4 Filling the animal feed into paloxes saves packaging material and reduces the required storage space.

FIGURES
Storage capacity for 10,000 t of grain, 1,250 t of ingredients, 206 t of finished products in the bulk storage system and 200 t in the bag warehouse
Animal feed production capacities of 100–120 t/d in the formulating system and 16 t/h on the two pelleting lines
Flour mill with an annual output of 4,000 t
55 employees

HISTORY
1926 Established as Mühlen AG Thun und Interlaken.
1937 Acquisition of Mühlen AG Flamatt.
1952 Start of feed production with the proprietary brand “Trofino”. With the construction of the new mill in Oey-Diementigen, renaming into Mühle Burgholz AG.
2011 Mühle Walther AG becomes the main shareholder.
Today, production is split into 20% bakery flours and 80% Trofino animal feeds.
SMALL BATCHES FOR BIGGER PROFITS

Hagen Industries in Canada chose a Bühler machine to get the size of its pet food batches just right. The new extruder ensures freshness and quality product.

By Marjo Johne  Photos by Pierre Arsenault
Making extruded food for small pets such as hamsters, rabbits, and parrots was always something of a major undertaking at Hagen Industries Ltd., the specialty pet products factory owned by Rolf C. Hagen Inc. in Montreal, Canada. For 15 years, the Hagen Pet Food factory in Waverly, New York, where the company manufactures large volumes of dog and cat food, had to regularly deviate from its usual operations and shut down its ten-ton extruder machine so it could be cleaned and reconfigured for lower-volume runs of small animal food products.

“Our facility in New York performed this miracle for years,” explains Yvan Giguere, general manager at Hagen Industries. “The problem was, when you have a machine that runs ten tons per hour and you only need to produce a small quantity of product, you end up with a lot of waste.”

A fresh approach
A new facility equipped with a one-ton-per-hour twin-screw extruder from Bühler AG has changed all this. Launched in November 2011 in Hagen’s 250,000-square-foot (23,226-square-meter) Montreal plant, the new extruder – part of a large food processing system – efficiently produces batches as small as 250 kilograms. The entire system is managed by a Programmer Logic Controller (PLC) which tracks and records every step of the manufacturing process.
For Hagen, this means reduced waste, dramatically streamlined inventory, and an enhanced ability to ensure the quality and freshness of its products. “Extruded food has a shelf life of 14 to 18 months, so you don’t want your product to stay in the warehouse for too long,” says Giguere. “With the New York facility, sometimes we had to order five tons, or even ten tons of products, which meant four to five months of inventory in some cases. With the new extruder, we always have fresh product.”

Higher productivity

Having a smaller machine will make it easier for Hagen to develop new products because it’s now less costly to run test batches, says Giguere. Bühler’s twin-screw design also gives Hagen flexibility when it comes to kibble shapes, sizes, and density. Giguere and his team spent about five months sourcing equipment for the new facility. They decided to go with Bühler’s twin-screw extruder after a visit to the company’s headquarters in Switzerland, where they saw a test run of various Hagen products.

From installation to live operation, working with Bühler has been a smooth process overall, albeit one with a few challenges, says Giguere. Bühler provided excellent support during construction of the facility and continues to do so, he says. The company has also trained key Hagen personnel on the new extruder. “We’re very happy with the machine and with the support we’ve received from Bühler,” says Giguere.

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Above: Bühler PolyTwin™ Extruder system with high flexibility for smaller batches.  
Below: Bühler AeroDry™ conveyor dryer to control target end moisture of the extruded products.

THE COMPANY

Hagen Industries Ltd., a Montreal-based manufacturer of food and products for pets such as small animals, birds, fish, reptiles, cats, and dogs.

THE CHALLENGE

Manufacturing small volumes of product on a machine designed to extrude ten tons an hour made it difficult to maintain good operation parameters and resulted in higher-than-ideal inventory levels.

THE SOLUTION

A new food processing system equipped with main machinery supplied by Bühler. This includes a twin-screw extruder, hammer mill, feeder, pre-conditioner, dryer, and cooler.
Bühler takes the lead with the launch of its most advanced high capacity optical sorter yet. The new SORTEX A MultiVision delivers exceptional food quality and safety through advanced defect inspection technology.
Mycotoxicology is currently a subject of international importance. With the increasing incidence of mycotoxins in the food chain – toxic to humans and animals – processors of a wide variety of foods, all over the world, are seeking more reliable sorting solutions. “They need to remove these defects cost-effectively so that their commodities will meet the safety standards demanded of them,” explains Bühler Sortex research and development director Matt Kelly. “This is a major health issue for the consumer. In response to this need, we have invested heavily in the development of our most advanced optical sorter – the SORTEX A MultiVision – which is suited to a wide variety of dry commodity applications, including nuts, seeds, coffee and grain. Blighted product from a range of foodstuffs can be targeted, including such mycotoxins as sclerotia from sunflower seeds, vomitoxin from wheat, fusarium from barley, ergot from rye, and aflatoxins from peanuts and walnuts.”

**Faster performance, finer sort qualities**

The SORTEX A MultiVision is designed to deliver exceptional yield through superior defect and foreign material detection. Its advanced MultiVision inspection system is a key contributor to its phenomenal sorting performance. This enhanced inspection system, with its four-wavelength technology [visible and infrared] and PROfile [shape] detection technology, is able to identify defects not possible with RGB technologies. It excels in the most difficult of dry commodity food sorting applications where the strictest levels of food quality and safety are demanded. Processors who seek ultra-precise sorting for high volume applications can benefit from Bühler’s state-of-the-art Enhanced InGaAs camera technology. This has been created specifically for high-speed optical sorting, enabling the SORTEX A MultiVision to identify the subtlest of color defects. Thus it can remove contaminated product and “same-color” foreign material with outstanding accuracy.

**Reduced operational and maintenance costs**

The five-chute design provides processors with maximum sort configuration flexibility, providing both re-sort and simultaneous sort on the same machine. This delivers superior efficiency and productivity, with sort capacities of up to 15 tons per hour, dependent on the commodity and application. Typical for a Bühler innovation, maintenance requirements are kept to a minimum. Sophisticated dust management, including sealed optical and control boxes protecting essential components from dust, minimise downtime and increase hourly capacity and yield. Low power and low air consumption, along with long-life, high-speed ejectors, further reduce operational and maintenance costs. Matt Kelly is convinced that businesses in many different sectors will see the benefits of the SORTEX A MultiVision, “because it delivers faster performance and finer sort qualities, for higher capacity processors.”

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IT’S A WRAP

The new META-M 2900 by Leybold Optics applies aluminum coating to flexible substrates for packaging solutions at unrivalled speeds for maximum output.

“Productivity is the key,” says Heiko Hagemann. As Product Manager Industrial at Leybold Optics, a Bühler company, he has shepherded the development of the new META-M 2900 metalizing machine which was presented to the public earlier this year.

“And we’re unbeatable when it comes to output,” he adds: The innovative process employs more than the standard number of ceramic evaporation sources for roll-to-roll aluminum coating of plastic substrates such as polyester, polypropylene, or other special materials. This means that the META-M 2900 can provide the same coating thicknesses at higher speed, significantly increasing productivity compared to conventional devices.

Various applications

There are three main areas of application for flexible coated films such as those made by the META-M 2900. They vary according to the coating width which can be adapted as required, depending on the substrate in use.

Sheets with very thin coating are used for making interlayers placed between architectural glass panels in construction. They deflect sunlight to prevent the building from heating up while still remaining completely transparent for optimal lighting indoors.

Foils with medium-thickness metal coatings are used for flexible packaging – for instance, in the food packaging industry; here, the aluminum coating has an important barrier function, rendering the wrapping impermeable to oxygen and steam. These barrier properties are enhanced by advanced plasma pretreatment. Finally, thick metal coating is applied to substrates used in packaging of highly photosensitive items such as delicate electronics.

No one metalizes faster

“Our customers want to achieve higher productivity in a competitive market, but they also want a robust machine with high availability,” says Hagemann. The high-rate aluminum evaporator of the META-M 2900 ensures best-in-class metalizing speed.

“The machine’s design allows for easy and intuitive operation, even for newcomers to the business of vacuum coating,” he notes. Leybold Optics offers machine and process specialists who can support customers throughout the lifetime of their machine, and also provides service and maintenance through its global network.

META-M 2900:
Performance data

- Process speed: Up to 20 m/s
- Coating width: Up to 2,900 mm
- Roll diameter: Max. 1,250 mm
- Dimensions: Approx. 17.8 m x 6.0 m x 3.2 m
- Substrates: PET, (B)OPP, CPP, HDPE, LDPE, PA, PVC
COMPACT MAIZE MILLING SOLUTION

The innovative Isigayo compact mill may be a game-changer for newcomers to maize milling and improve food safety and security for rural Africa.

It was during the Innovation Challenge in 2010 that the team from Bühler South Africa came up with a proposal that would cater to the twin needs of sub-Saharan Africa: Better-quality food, and grassroots economic development.

Based on their intimate knowledge of local market conditions, the team worked on a concept that would allow farmers to process their maize close to where it is produced and consumed. Thus was born the idea of Isigayo, a preassembled compact unit that condenses the process of an industrial milling plant into two shipping containers with all the features of an entire milling plant, but operates as a single machine.

Market transformation

In most parts of southern Africa, the maize harvest – both from large-scale industrial and from small-scale farmers – is sold to traders who transport it to storage silos and larger milling cooperatives. From these silos, it is purchased and processed by wholesale dealers before being sold to the end-consumer by the retail industry.

“Auhler’s new solution, Isigayo, will help transform this market value chain by aiding new entrepreneurs to become millers at a community level; this is also in line with the South African government’s plans to strengthen rural economies,” says Raphael Krucker, Head of Sales at Bühler South Africa.

The Isigayo compact mill, which fits into two containers and can be assembled within one week, is ideally suited for startup companies in milling and maize processing. It is also targeted at small farmers, communities, and cooperatives. The Isigayo concept instantly eliminates not just one, but several processes in the value chain and cuts out the middlemen by providing this compact mill, which is low-priced in comparison to industrial milling costs and allows farmers to produce a high-grade, highly nutritional end product, i.e., maize meal.

Catalyst for economic development

Since Isigayo reduces the value chain, the costs of transportation for entrepreneurs are significantly reduced. Isigayo also eases the concern of food security (in the conventional value chain, up to 30 percent of maize flour is lost between harvest and storage or production). Isigayo thus helps curb food loss and serves as a catalyst for local job creation and economic development in rural communities.

The mill itself is also assembled in South Africa, adding further value and jobs to the national economy. Its significance was underscored by the attendance of the Isigayo launch by Garth Strachan, Deputy Director General of South Africa’s Department of Trade and Industry.
FROM A PATCHWORK SOLUTION TO AN INTEGRATED AUTOMATION SOLUTION

Just as our eating habits have changed and become more refined over centuries, our techniques for milling grain have evolved: from stone structures powered by water wheels, they have developed into efficient production units controlled by software.

“Automation in a flour mill is at a very high level today,” notes Andrea Quaglia whose family has been milling wheat at Molino Quaglia in Vighizzolo d’Este, near Padua, Italy, for four generations. “If the software breaks down, we can’t operate. We are completely dependent on technology. Control systems play a crucial role in every production process – reception, cleaning, grinding, mixing, storing, loading, and packaging.”

Andrea is the managing director of the family business; his brother Lucio is CEO and his sister Chiara is COO. They first introduced an automated control system in 1998. It was provided by an Italian supplier that later went out of business. As Molino Quaglia continued to expand over the next decade, the family kept the factory running with a series of patchwork solutions and seven PLC’s from different third-party providers while they sought an integrated long-term solution.

In 2007 Molino Quaglia purchased its first Bühler equipment, a Ventus air classifier and a Primus grain cleaner, for the pre-cleaning of incoming grain.

Quaglia noticed immediate improvements in both production performance and the quality of the flour itself. This was true for other Bühler purchases over the next several years – the Light Peeler, the wheat classifier Vega, the colour grader SORTEX, and the roller mill Antares.

So they asked Bühler to partner with them for a new automated control system in 2011. “We wanted the reassur-
Once the software was engineered, implementation proceeded quickly over a 15-day period, in stages so as not to disrupt the entire production cycle. “Our main concern was downtime,” recalls Andrea Quaglia. “Would the start-up be smooth? Would we start up immediately? Bühler’s preparation was optimal. They told us how long we would stop, how many hours, how many persons they would need to do the work. When it was over, they had respected their projections perfectly. We had only two full days of downtime.”

The current WinCos® plant control system controls about 3,000 I/O’s and also embeds third-party control systems. Its installation has meant reassurance, tranquility, and ease of working for Quaglia. Not coincidentally, 60 percent of the mill’s equipment is Bühler, and more is on the way, not to replace old machines but to install new systems of integrated hardware and software for quality improvement and competitive advantage. “Some of our competitors have been using the same machinery for 40 years. We don’t want to be bound to the past and lose efficiency,” declares Andrea Quaglia. With Bühler, they won’t.

**Andrea Quaglia ticks off the most valued features of Bühler’s automation system for Molino Quaglia:**

1. Traceability. “Our corporate customers are demanding this more and more.”
2. Food safety through quality control.
3. Improved production efficiency.
4. Energy savings. “We didn’t make the investment for the energy savings but saw a 10 percent drop in our energy costs” – a considerable expense for mills.
5. Flexibility – an important feature in a mill with more than 60 products.
6. Durability – Bühler machines last longer with less downtime.
7. Lowered waste because of improved accuracy in handling raw materials.
8. A 24-hour hotline for service 365 days a year.
NEW DIMENSION OF COFFEE FLAVOR CREATION

With the new RoastMaster™ 60 cross-sector technology trends have been carefully blended into a state-of-the-art coffee roaster. Boasting energy-saving hot air recirculation, automated process control and multistep-roasting profiles, this roaster is the heart and soul of any roast and ground coffee line.

Across all sectors in food processing, cutting down on operating costs is a major concern, as Bühler knows well. With energy prices peaking, one way to achieve this is to minimize energy consumption. Further hot trends in the food processing industry are optimized machine design for better handling and maintenance, intelligent process control systems and, of course, the ability to create individual and customized products. In order to be profitable in the long term, food processors today have to cut down energy consumption to a minimum, be able to rely on a long service life of their high-tech machines – and create an excellent product that is perfectly adapted to its customers’ preferences and stands out from the competition.

Adjusted to optimized flavor and bean properties

For coffee processing, this holds especially true. Every coffee manufacturing application requires individual roasting processes for optimized flavor and bean properties. Inspired by the mega trends in food processing
technology, the new RoastMaster™ 60 was launched in spring at the Tea & Coffee World Cup Exhibition in Singapore. With its hourly capacity of 240 kg, it opens up a new dimension in drum roasting for small and medium sized operations, featuring multistep-roasting profiles to enable customized flavor creations, highest operational efficiency, reliability and safety. The even distribution of beans in the improved roasting chamber assures an efficient and homogeneous heat transfer from the hot air to the beans for best flavor quality. Optional water quenching will stop the process precisely at the desired degree of roast.

Recycling hot air

Equipped with a fully automated process control various recipes can be stored and reproduced. A user-friendly 12.5-inch touch-screen panel provides easy access for operators to control process parameters and for monitoring. A major asset, however, is the RoastMaster™ 60’s optional hot air recirculation, which allows for energy savings of up to 30 percent on coffee roasting compared to open systems. Only two decades ago, open systems that allow a full escape of air were the norm, requiring high amounts of energy to continuously reheat the system. While recirculated air systems are common practice in large capacity series air-roasting equipment, it is an industry-wide innovation for roasters of this size. Further energy savings can be made by improving production processes. Bühler boasts long-standing expertise in working with its customers to reduce their energy footprint. But with all these energy savings measures, there is never any need to compromise on quality: Bühler’s goal is no less than a new dimension of coffee flavor.

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FROM THE FIELD TO THE PLANT, GRAIN CLEANING IS ESSENTIAL

Different trends in food safety and climate all point in one direction: Adequate grain cleaning is paramount to profitable grain processing and to fighting post-harvest food wastage. Bühler provides technological solutions for every requirement – be it sorting, decontaminating or hulling.
On the one hand crop failures, fungus contamination or moist crops may jeopardize food security: Either the yield is too low, or the grain is contaminated with dangerous toxins, or moist crop is prone to mold and rot during storage, thus leading to food wastage. On the other hand, the demand for safe and nutritious food is on the rise, due to stricter hygiene guidelines claiming higher quality, and the growing world population requiring larger quantity. The solution to both challenges lies in careful and appropriate grain cleaning – it increases storage life of the grain, improves product quality and enhances production reliability as well as profitability.

Step-by-step cleaning
Depending on the requirements, grain cleaning consists of different steps. The basic step at the collection point always consists of sifting and aspirating. This is how foreign particles such as straw, bigger stones, paper, pieces of wood or corncobs – but also lighter grains which might be contaminated or in length broken grains can be eliminated. Moreover, compromised surface quality of the grain can also be dealt with through surface abrasion while sifting, as well as through specialized hulling machines. Basic cleaning accounts for approximately 90 percent of grain cleaning. In subsequent steps, the grain can be sorted according to highly specific parameters, which include practically every physical property ranging from size to discoloring thanks to trieur graders and SORTEX machines.

Striking a fine balance
All these steps can be adjusted and combined depending on which kind of grain quality is intended. If grain is being processed to become animal feed, naturally different guidelines apply than if it is destined for human consumption. Then, depending on the application – whether milling, seed processing or malting – companies may also diversify their product for basic or premium ranges. Depending on the region where the finished product is to be sold, also different guidelines or preferences might apply. The art of adequate grain cleaning consists in the fine balance between sorting waste product without including too many good grains. Perfectly adjusted grain cleaning will guarantee optimized product quality with good profitability.

Basic cleaning with sieve and aspiration
The core machine for basic grain cleaning, grading and aspirating is the Schmidt-Seeger TAS LAAB. The machines from this series are optimally suited for applications in plants for the reception and storage of grain and other bulk materials, port facilities, mills, silo and storage plants, seed processing plants as well as malting plants. Thanks to the large number of screens in limited space and the tried and tested plansifter technology, high throughput rates can be attained while only small space is required. As can be expected from a Bühler machine, the basic cleaning solution adheres to highest standards in terms of operational reliability and guarantees a long service life.

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AUTOMATION SETS EVERYTHING IN MOTION

Great responsibility and flexibility is their daily business. Bühler’s automation team works in close collaboration with the engineering unit to get the machines running, spanning across all areas from milling, malting to animal feed.

In Braunschweig, Germany, a passionate team produces software. While their product might seem less tangible than the high-precision manufacturing that Bühler is known for, the code behind the plant control system is indispensable to making the company’s technological masterpieces perform perfectly. Linking machines to form an automated production line or an entire plant requires creativity and tailor-made solutions. Bühler’s solution for individual and scalable plant set-up is the plant control system WinCos®.

“In the multi-faceted world of automation writing code is the core task,” explains Gabriel Tobescu, the new head of automation since May. “But we also advise customers on how to improve their production process, liaise with other Bühler units during manufacturing and train plant operators to use the new systems.” The 33-strong automation team is part of any project from its very beginning, coordinating basically every component with a cable connection – ranging from high-voltage stations down to individual sensors. In addition, the team continue to play an important part in the customer’s success even after commissioning by providing on-call service, production support as well as remote maintenance, and may even enhance performance on existing material by retrofitting state-of-the-art software.
TRAINING COURSES FOR PASTA AND EXTRUDED PRODUCTS

Bühler specialists pass on their hands-on expertise in pasta production and extrusion with the right mix of theoretical groundwork and practical learning-by-doing.

Pasta Technology Seminar
The bi-annually recurring training program for pasta producers conveys a comprehensive understanding of modern pasta production equipment and the corresponding process technologies, and makes full use of Bühler’s well-equipped experimental laboratory.

Extruded Products Workshop Food
The hands-on four-day workshop at the extrusion pilot plant focuses on Bühler’s twin-screw extrusion technology and drying in mill products. It will introduce the technological basics and highlight the main extruder features, but concentrate on experiments and demonstrations on modified flours, cereals, breadcrumbs and value added products.

NEW ONLINE TRADE SHOW CALENDAR
The new Bühler online trade show calendar provides a fast and easy overview of Bühler’s presence at international trade shows. You can search it according to regional or industry parameters and import the selected event to your electronic calendar.

Find out more at www.buhlergroup.com/events

More information on course contents and important dates, as well as online registration at www.buhlergroup.com/training-courses